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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,264	02/01/2005	Yutaka Minami	257262US0PCT	3925

22850 7590 03/29/2006

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EXAMINER
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LEE, RIP A

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/505,264	<b>Applicant(s)</b> MINAMI ET AL.	
	<b>Examiner</b> Rip A. Lee	<b>Art Unit</b> 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-10 is/are rejected.
- 7) ☒ Claim(s) 1-4 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11-18-04;08-20-04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Double Patenting*

1. Claims 1, 4, and 11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of Minami *et al.* (U.S. Patent No. 6,930,160) in view of Rodriguez *et al.* (U.S. 6,221,967). Present claim 4 is drawn to a 1-butene based polymer having a melting point ( $T_m$ -D) of 0-100 °C, a stereoregularity index of 30 or lower,  $M_w/M_n$  of 4 or lower, and  $M_w$  of 10,000-100,000, and intrinsic viscosity,  $[\eta]$  of 0.01-0.5 dL/g. Claim 1 of Minami *et al.* discloses a 1-butene based polymer having a melting point ( $T_m$ -D) of 0-100 °C, a stereoregularity index of at most 20,  $M_w/M_n$  of 4 or lower, and  $M_w$  of 10,000-1,000,000. The patent is silent with respect to the intrinsic viscosity, however, one of ordinary skill in the art would have found it obvious this property is inherently possessed by the polymer of the prior art, especially in light of the fact that the four other recited properties are essentially the same, and in view of Rodriguez *et al.*, which shows that polybutenes having a minimum weight average molecular weight of 10,000+ exhibit a minimum inherent viscosity of 0.07 dl/g (col. 7, lines 46-56). One of ordinary skill in the art would have found it obvious to use the polybutene as a modifier because Rodriguez *et al.* shows that polybutenes are used to modify the properties of other polyolefins (col. 1, line 26).

2. Claims 2, 4, and 12 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 4 of Minami *et al.* (U.S. Patent No. 6,930,160) in view of Rodriguez *et al.* (U.S. 6,221,967).

Present claim 4 is drawn to a 1-butene based polymer having a melting point ( $T_m$ -D) of 0-100 °C, a mesopentad fraction *mmmm* of 68-73 %,  $M_w/M_n$  of 4 or lower, and  $M_w$  of 10,000-100,000, and intrinsic viscosity  $[\eta]$  of 0.01-0.5 dL/g. Claim 4 of Minami *et al.* discloses a 1-butene based polymer having a melting point ( $T_m$ -D) of 0-100 °C, a mesopentad fraction *mmmm* of 68-73 %,  $M_w/M_n$  of 4 or lower, and  $M_w$  of 10,000-1,000,000. The patent is silent with respect to the intrinsic viscosity, however, one of ordinary skill in the art would have found it obvious this

property is inherently possessed by the polymer of the prior art, especially in light of the fact that the four other recited properties are essentially the same, and in view of Rodriguez *et al.*, which shows that polybutenes having a minimum weight average molecular weight of 10,000+ exhibit a minimum inherent viscosity of 0.07 dl/g (col. 7, lines 46-56). One of ordinary skill in the art would have found it obvious to use the polybutene as a component in a hot melt adhesive because Rodriguez *et al.* shows that polybutenes are used for hot melt adhesives (col. 1, line 51).

### ***Claim Objections***

3. Claims 1 and 2 are objected to because of the following informalities: Please insert "it is" or simply, "is" prior to the term "a crystalline resin." Appropriate correction is required.
4. Claim 4 is objected to because of the following informalities: In condition (5), please replace "weigh(Mw)" with "weight (Mw)." Appropriate correction is required.
5. Claim 8 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form. The claim recites the same limitations presented in parent claim 5, and therefore, it fails to limit further the subject matter of the parent claim.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yabunouchi *et al.* (U.S. 5,854,165).

Yabunouchi *et al.* discloses a process of polymerizing olefins in the presence of a catalyst comprising a doubly bridged, group 4 metallocene and suitable co-activator. As can be seen in the examples and claims of the prior art, the inventive transition metal complexes adequately meet the structural requisites set forth in the instant claims. Co-catalysts include organoboron compounds (col. 17-18) which form an ionic complex upon reaction with the transition metal component. The inventors do not show in the examples use of the catalyst in a process for polymerizing 1-butene, however, one of ordinary skill in the art would have found it obvious to arrive at the claimed process because Yabunouchi *et al.* contemplates a process in which 1-butene may be polymerized (col. 22, line 55). Since these guidelines are disclosed adequately in the prior art, one of ordinary skill in the art would have expected to use the catalyst in a process for polymerizing 1-butene with a high degree of success.

9. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwamura *et al.* (U.S. 6,339,135).

Kashiwamura *et al.* discloses a process of polymerizing olefins in the presence of a catalyst comprising a doubly bridged, group 4 metallocene and suitable co-activator. As can be seen in the examples and claims of the prior art, the inventive transition metal complexes adequately meet the structural requisites set forth in the instant claims. Co-catalysts include organoboron compounds (col. 16-18) which form an ionic complex upon reaction with the transition metal component. The inventors do not show in the examples use of the catalyst in a process for polymerizing 1-butene, however, one of ordinary skill in the art would have found it obvious to arrive at the claimed process because Kashiwamura *et al.* contemplates a process in which 1-butene may be polymerized (col. 21, line 42). Since these guidelines are disclosed adequately in the prior art, one of ordinary skill in the art would have expected to use the catalyst in a process for polymerizing 1-butene with a high degree of success.

10. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. None of the cited references teaches or fairly suggests a 1-butene based polymer exhibiting the recited properties in addition to zero-shear viscosity and tensile elongation at break. The examiner finds no basis to believe that the properties recited in the claim are inherently possessed by the polymers disclosed in the cited references.

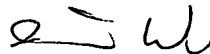
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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March 21, 2006



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